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ABSTRACT

Those in the field of wilderness-adventure therapy (WAT) have come a long way in their attitude toward research, but their methodology has lagged behind their enthusiasm. This paper examines the literature in the field of wilderness adventure therapy for delinquent and pre-delinquent youth in order to evaluate the current state of research. The paper discusses the theoretical base of WAT to provide a conceptual framework for interpreting the literature. Also offered is an overview of the methodological problems encountered by studies in the field. The review itself includes 25 empirical studies presented according to the type of research design employed. Although the findings are inconsistent, a number of areas demonstrate relatively clear results. Evidence supports the claims that wilderness-adventure therapy leads to improved self-perceptions, increase of social adjustment, and reduced recidivism. The findings are less conclusive regarding locus of control, problem solving ability, behavior change, and duration of the effects. It is concluded that WAT appears to be a viable alternative for the treatment of delinquent youth. It is recommended that future research highlight the need for process evaluations to determine how and why the intervention works. (Contains 54 references.) (RJM)

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Wilderness-Adventure Therapy for Delinquent and Pre-Delinquent Youth: A Review of the Literature

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Abstract

This paper examines the literature in the field of wilderness adventure therapy for delinquent and pre-delinquent youth in order to evaluate the current state of the research. The theoretical base of wilderness-adventure therapy is discussed to provide a conceptual framework for interpreting the literature. An overview of the methodological problems frequently encountered by studies in the field is offered as well. The review itself includes 25 empirical studies which are presented according to the type of research design employed. Although the findings, overall, are inconsistent, there are a number of areas which demonstrate relatively clear results. There is reasonable evidence to support claims that wilderness-adventure therapy leads to improved self perceptions, increased social adjustment, and reduced recidivism. The findings are less conclusive regarding locus of control, problem solving ability, behavior change, and duration of the effects. In conclusion, wilderness-adventure therapy appears to be a viable alternative for the treatment of delinquent youth. Recommendations for future research highlight the need for process evaluations to determine how and why the intervention works.

Wilderness-Adventure Therapy for Delinquent and Pre-Delinquent Youth: A Review of the Literature

Throughout the 1960's and 70's a great deal of attention was focused on rehabilitation programs. Delinquent youth was one population that demanded notice due to greatly increased awareness of incidences of drug abuse, criminal activities, and other social problems (Stewart, 1978). In fact, many felt that juvenile delinquency in America had reached epidemic proportions (e.g., Kelly & Baer, 1968; Golins, 1977, cited in Winterdyk, 1980). There was a need for alternative and innovative treatment programs to meet the growing demand for services, as well as to serve a population for whom traditional treatment approaches had not been successful (Behar & Stephens, 1978). There was also a movement toward deinstitutionalization and short-term treatment that would be more cost effective (Scull, 1977). Wilderness adventure therapy developed in response to this need by offering a short-term, intensive experience designed to modify problem behavior through personal development. These programs have survived changing social and political climates and seem to have become a respected tool for rehabilitation and prevention (Stewart, 1978). This is evidenced by the ever-increasing establishment of adventure therapy programs throughout the country during a period of fiscal restraint which has brought the demise of many social programs.

Although wilderness-adventure programming is recognized as a relatively new and innovative form of treatment, it has its roots

in the most basic element of learning. Colins (1980) observes:

> Adventure education, which essentially is learning by doing in a consequential context, has been the predominant educational mode throughout the five million years of human life. It is only with the advent of civilization with its specialized, sedentary lifestyle that we have largely dissociated learning from doing. (p. 6)

It is this simple principle of providing challenging experiences through which individuals may learn more about themselves and others that led to the establishment of Outward Bound, the pioneer program in the field of outdoor adventure education.

Dr. Kurt Hahn was an exiled German educator who was commisioned to design a survival program for British merchant seamen during World War II. There was great concern over the number of young seamen who were dying when forced to abandon ship while older, more experienced sailors, though in poorer physical condition, would survive the same ordeal. Hahn recognized the necessity for rigorous physical conditioning but he also stressed the importance of group pride, personal contribution, and trust in yourself and others. Hahn strongly believed in the value of creating stressful situations to unify groups and professed that hard-won successes would establish confidence and a more positive self image (Wilman & Chun, 1973). It was this philosophy that led Hahn to found Outward Bound.

The conclusion of the war was not the end of Outward Bound but only the beginning. Outward Bound has experienced tremendous growth in the last 25 years. There are currently 39 Outward Bound

schools worldwide, including 6 in the United States (Outward Bound Inc., personal communication, August 1, 1989). In addition to being the pre-eminent program in the field of adventure education, Outward Bound has been actively spreading its philosophy by assisting in the establishment of related programs throughout the United States. The Outward Bound model has been adapted to serve in the treatment of a variety of mental health populations including physically and mentally handicapped, mentally ill, substance abusers, and delinquent youth (Goldwasser, 1985).

The proponents of wilderness-adventure programs for delinquent youth have claimed that it is effective in producing a wide range of changes in attitudes and behaviors. However, the research to support these claims has been far from extensive and certainly has not kept pace with the intervention's increase in popularity (Stewart, 1978; Wright, 1982). In fact, for the most part, there has been a resistance to research (Godfrey, 1974; Kimball, 1986). This may stem, in part, from the nature of the field which emphasizes action and direct participation as opposed to the passive verbalization of research (Ewert, 1987). The nature of the proponents must also be considered since many are from non-academic backgrounds and lack familiarity with research. Clearly, an important factor in understanding this resistance is the strong belief among advocates in the intuitive nature of the experience. Many feel emphatically that "the mountains speak for themselves" and they seem to view research as something sacrilegious, in that it would violate the experience in some

form (Bacon, 1987, cited in Boudette, 1989; Vokey, cited in Boudette).

In deference to such views, earlier research tended to avoid quantitative analysis in favor of qualitative studies. Kimball (1979) explains that many proponents maintained that the psychological effects cannot be anticipated because they are unique to the individual participant. Narrative accounts and case studies were considered more appropriate for detecting these changes. The fact that the effectiveness of wilderness-adventure therapy has rested, for a long time, on the faith and enthusiasm of its supporters is captured in this frequently cited analogy by Kelly (cited in Winterdyk, 1980): "(adventure therapy)...can be compared to electricity, we know it works but we are not sure why or for whom" (p. 199).

In the past several years, there has been increasing recognition of the need to document the effects of these programs. This follows a trend in the whole field of adventure education toward more research. This is evidenced by increasing publications, greater focus on research in conference presentations and workshops, and an entire issue of the field's tri-annual journal being dedicated to research and evaluation (Journal of Experiential Education, 1987). Whether this is simply a natural evolution in a discipline's maturation or whether there is a more complex explanation, practitioners are asking questions, and they are turning to researchers for the answers. As providers of therapeutic services, practitioners are recognizing the need for professional responsibility and

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accountability. The number of states developing wilderness adventure alternatives is steadily growing, and proponents are finding that jobs and funding depend on their ability to prove their effectiveness. Additionally, research and evaluation has become respected for its importance in program development and upgrading the quality of services (Boudette, 1989; Ewert, 1987).

The recent focus on evaluation creates a need to closely examine the current state of research in the field of wilderness adventure therapy for delinquent and pre-delinquent youth. The purpose of this paper is to discuss what conclusions can be drawn from past research and what direction future research should take. The review will focus on short-term, intensive wilderness adventure experiences designed to facilitate personal development. These programs are based on the Outward Bound model where high stress serves as a catalyst for change. The review will include only studies employing quantitative research methods. In addition, the duration of the intervention must be a minimum of one week.

Theory

Being a relatively young field, theory development is in its early stages and is virtually untested. Clearly, no single psychological model is able to explain the many forces at work in the wilderness-adventure therapy process (Vokey, cited in Boudette, 1989). The predominant theoretical orientation in adventure therapy cuts across numerous disciplines, including, education, psychology, sociology, communication, recreation, and religion (Zwart, 1988). This multidisciplinary nature makes it

difficult to formulate a comprehensive theory, and there have been few attempts (Zwart; Boudette, 1989). Thus, theory tends to remain general and somewhat "pop" since theoreticians lack expertise across disciplines.

It is generally agreed that the essential ingredient in wilderness-adventure therapy is confrontation of self (e.g, Skipper, 1974; Zwart, 1988). This is achieved through physical and emotional stress which breaks down the characteristic defense mechanisms of the delinquent, as well as inefficient coping styles (Boudette, 1989; Zwart). This ensures that the more enduring qualities of personality eventually emerge during the intervention and can be addressed. Kimball (1986) notes: "It is the intentional use of stress that marks the point of departure between therapeutic camping and wilderness-adventure programs" (p. 11). The activities are designed to create stress in a controlled situation. The wilderness is ideal for this because the challenges are natural and real (e.g., climbing a mountian), as opposed to artificial and contrived. In addition, while the perceived risk is high, the actual risk is really quite low. Nevertheless, the stress must be carefully monitored, because there is a fine line between tension that is creative and growth oriented and tension that is defeating (Kimball, 1986). It is this stress, presented in a real and challenging manner, that is the crux of the adventure intervention.

Another essential ingredient of wilderness-adventure therapy is the focus on self concept. The literature on self concept is inconsistent and confusing, but there is agreement on one thing:

the concept of self is not particularly amenable to change (e.g., Berube, 1977; Combs & Snygg, 1959; Winterdyk,1980). Combs and Snygg asserted: "The first step in the aquisition of new concepts of self must, of course, be some sort of experience inconsistent with existing self perceptions" (p. 34). An underlying assumption of the adventure model is that individuals should not just be told that they are capable of more than they think they can do, but rather, a set of circumstances must be devised where they demonstrate such competencies to themselves (Kelly & Baer, 1969). The adventure experience is designed to counteract patterns of failure by enabling the delinquent to display areas of power and competancy instead of focusing on failure and deficiencies (Kimball, 1986). The individual is compelled to utilize previously untapped resources to negotiate the situation successfully, thereby overcoming self imposed limitations and developing a sense of self efficacy. However, as White (cited in Skipper, 1974) points out, the helping processes must involve more than just making clients feel good. They must impart new skills. The adventure intervention continually focuses on developing skills that students need to overcome immediate challenges. Thus, the experience provides participants with irrefutable evidence that they can control what happens to them.

Intervention and Goals

Although there is considerable diversity among wilderness adventure programs for delinquent youth, they generally share a similar structure and common goals. The typical adventure

intervention entails traveling through the wilderness with a small group of peers (6-10) and 2 instructors for approximately a month. The group functions as a self-sufficient unit and is responsible for preparing meals and shelter as well as successfully completing any activities on the course. Activities typically include backpacking, rockclimbing, ropes course and may also involve canoeing, caving, sailing, and bicycling. Most programs include a solo experience where the individual is required to spend as much as 3 days by himself within a confined area. Often, programs conclude with a final expedition where the group must travel for several days to a predetermined point without any assistance from the instructors.

Having described the intervention, it seems appropriate to briefly describe the participant. The juvenile delinquent's personality deficiencies have been frequently noted in the literature (Golins, 1980; LaPaglia, cited in Nold & Wipers, 1975). The character traits often cited are summarized as follows: low self esteem, lack of confidence in the ability to effectively cope with one's environment, inability to communicate, alienation from and resentment toward others, unwillingness to assume responsibility, inability to delay gratification or pursue long-range goals, low threshold of frustration, impulsivenss, unwillingness to cooperate or respect authority, and inability to form mutual-trust relationships (LaPaglia, cited in Nold & Wipers). In addition to the multitude and complexity of their problems, delinquent youth are difficult to treat because typically, they lack the desire to change. They

are generally not in treatment seeking assistance with life problems or relief from psychological distress, but rather because they are required to be there (Boudette, 1989).

Like the broad theory that spawned them, the goals of wilderness-adventure therapy are general and all-encompassing. They basically can be synthesized into increased personal adjustment and improved interpersonal relations. The most prominent aspect of personal adjustment targeted for change, and the primary focus of most interventions with delinquent youth, is self concept (e.g., Kimball, 1979; Winterdyk, 1980; Zwart, 1988). Increased self esteem seems to be the foremost goal of adventure therapy. In more general terms, personal growth and self exploration are existential ideals that are frequently mentioned (e.g., Colorado Outward Bound School, cited in Boudette, 1989; Winterdyk; Wolfcreek Wilderness School, cited in Zwart, 1988). The basic goal is that the participant will become more aware of self (i.e., thoughts, feelings, attitudes, and behaviors) which will stimulate personal changes, increasing mental and emotional adjustment.

On an interpersonal level, it is expected that students will adopt more appropriate social attitudes and as a result, exhibit more socially responsible behaviors. Specifically, this entails demonstrating self control in stressful situations, responding appropriately to rules and authority, and showing consideration for others (e.g., Winterdyk, 1980; Wolfcreek Wilderness School, cited in Zwart, 1988). Development of social skills and subsequently, increased interpersonal effectiveness are also

anticipated changes (e.g., Colorado Outward Bound School, cited in Boudette, 1989; Winterdyk). Communication, cooperation, trust, and empathy are all skills that are continually needed throughout the experience. A final goal, which could be included under both personal adjustment and interpersonal relations, is improvement in problem solving skills (e.g., Winterdyk; Wright, 1982). These are necessary for dealing with individual issues, interpersonal conflicts, and group challenges on a daily basis.

The Change Process

Skipper (1974) identified three steps in the wilderness adventure therapeutic process: 1) participants are made aware of self destructive response patterns; 2) alternative coping strategies are proposed; 3) opportunities are provided to practice new behaviors. He hypothesized that this process enables participants to regulate their own behavior and develops competence. Golins (1980) described five critical elements in the change process that impel a delinquent to alter his destructive ways. The five theoretical principles that will be discussed below have been adapted from Golins.

The wilderness setting is an integral component of the adventure intervention. It is evocative, unfamiliar and captivating, and these characteristics energize learning. The physical challenges offered by nature match the action-oriented and concrete developmental capability of the participant. The high degree of predictability and lack of ambiguity in this environment tend to evoke coping as opposed to defensive and manipulative behavior (Bernstein, 1972). The students may be

able to con the instructors at times, but the environment assumes much of the responsibility for reinforcement and punishment, and they "can't fool mother nature"; consequences prescribed by the environment are real, immediate and consistent. Removal from the dysfunctional home environment and associated reinforcers that maintained problem behavior also contributes to more adaptive functioning. Finally, nature is the "great equalizer"; participants are not bound by social roles and status that may have governed former behavior. Although gaining an appreciation for nature can be a rewarding aspect of an adventure experience, the real aim is to stimulate personal growth, and the wilderness is only a vehicle for facilitating this process.

Another key to the change process is the gamelike atmosphere that is created. The activities on a wilderness-adventure course are "unreal" and often fun and certainly don't seem like therapy. The environment is less threatening and the commitment is short term. This facilitates an atmosphere where the delinquent, who is characteristically very resistant to behavior change, is open to different coping techniques and has an opportunity to "try on" new responsible behaviors. It is important to recognize that the intervention does not attempt to uncover and manipulate old behavior's directly, but rather presents varying situations demanding different styles of coping. This dictates that the individual respond flexibly and adaptively and creates a desire for new behavior (Winterdyk, 1980). In the participants' minds, they are not making permanent changes but just doing what is necessary to "get through it". Of course, it is anticipated that

the individuals will discover reinforcers for the new responsible behavior, leading to a change in attitude. In this respect, the change process is very different from traditional therapy where the goal is to change the client's attitude in order to modify behavior. Adventure therapy assumes that experience is more therapeutic than analysis (Kimball, 1986).

Third, the nature of the activities is crucial to effecting positive change. As previously mentioned, they are action oriented which is well-suited for the delinquent adolescent who may lack the capacity or interest for insight-oriented psychotherapy (Kimball, 1986). Again, the activities are challenging and stressful, forcing confrontation of self. This would ordinarily be avoided by most delinquents, but the challenges, particularly when they are felt to be dangerous, when one's life is "at stake", take on an irresistable quality that often parallels the excitement of crime (Kelly & Baer, 1968). The activities are also structured, in that the tasks are clear and definable, with a definite beginning and ending and consistent and meaningful consequences. Good problem solving is required to successfully negotiate them. They are presented progressively so that participants are building upon previous skills and achievements. The experiential nature of the learning is important to challenging the beliefs, attitudes and behaviors that had been firmly entrenched in the delinquent's personality. The activities are also holistic, tapping cognitive, affective, and physical domains. Finally, the activities are designed to be completed successfully, thus, providing participants with a sense

of mastery.

Fourth, at the very core of the wilderness-adventure intervention is the fact that it is a group experience (Kimball, 1986). Adolescents have a developmental need to relate primarily through peers. This is recognized and capitalized upon by organizing participants into a learning unit. Burton (1981) believes that a positive sense of group identity, which is missing in many delinquents' families, is a necessary precursor to the development of a positive personal identity. The adventure model allows the development of individual strength within a cooperative framework. The group becomes a microcosmic society where rules, roles, and jobs are established (Boudette, 1989). Operating as a small, self-sufficient team in a wilderness environment requires mutual decision making which demands trust, cooperation, effective communication and good problem solving. The members of the group are dependent upon each other for their success as well as their survival. This promotes empathy, sharing, support, and patience and fosters a strong sense of community. This interdependence and the small size of the group make it likely that individual strengths will be maximized and weaknesses minimized. However, the stressful nature of the experience ensures conflict, and the interdependence demands that participants learn conflict resolution. The intensity of the experiences that group members share results in a social bonding; the pleasures and pains, highs and lows, frustrations and fears create an experience, which Maslow (1968) calls a "peak experience", that is unique and

highly impactful.

The final critical element in the change process is the style of the instruction. Suffering the same hardships and facing the same challenges as their students, instructors quickly establish a unique relationship with the delinquent youth. Staff members are respected not merely because they have the keys to the gate, but because they are proficient at skills that the students come to recognize as valuable (Greenwood, Lipson, Abrahamse, Zimring, 1983). Their authority is unquestionably based on commitment, care, and competence. Another important factor is instructor availability. Being with the students around the clock, day in and day out, provides greater opportunity to capitalize on teachable moments. These conditions inspire a degree of intimacy, trust, and mutual respect that goes far beyond that found in traditional settings (Greenwood et al.).

Generalizing to the Home Environment

Critics of wilderness-adventure programming often claim that the contrived situations have little carry-over value to other settings. However, an integral part of the intervention is ongoing processing of the experience, which is known as debriefing. During a debrief, the instructor facilitates group interaction to enhance the impact of the experience and ensure that students are relating what they are learning to the "real world". Kimball (1986) maintains that self confrontation does not automatically engender personal growth. Growth occurs as participants recognize, articulate, and reflect on feelings that arise from their experiences. There is also a great deal of time

on the course for introspection which encourages students to make associations between the experience and their own lives.

The following model (see Figure 1) has been adapted from Wright (1982). Ideally, wilderness-adventure therapy provides the delinquent with the self esteem, sense of mastery, and responsible decision making capability to feel that s/he has control over his/her life. Having developed problem solving and interpersonal skills, this self empowered individual has the tools to lead a responsible life.

Insert Figure 1 about here

The model represents the ideal; the reality is that there are no guarantees. Delinquents are inherently risky, limited and recalcitrant clients (Golins, 1980). Some adventure programs are more successful than others at implementing the change process. Kimball (1986) believes that the greatest challenge of adventure therapy is to successfully transfer the lessons of the wilderness experience back to the youths' everyday life in the community. After leaving the wilderness, many graduates return to a "jungle". Their home environments are generally characterized by inconsistency. They frequently are greeted by dysfunctional families, delinquent peers, economic hardships, unstable home environments, unemployment, and bad reputations. Furthermore, they lack support at home, in school, and in the community (Winterdyk, 1980). With insufficient understanding of what these young people have been through, society often responds with

alienation rather than admiration. Undeveloped follow-up services are incapable of meeting the demands for support that these graduates clearly need (Winterdyk, 1980).

Perhaps, the wilderness adventure intervention is best viewed as a catalyst for change. Participants will develop skills and demonstrate new behaviors, but whether these will be maintained at home is questionable. At least the delinquent youth have experienced change, so that they know what it's like and realize that they do have the capability (Golins, 1980).

> You don't come back from the trip with a different person. What you do come back with is a person who maybe sees himself and his abilities in a different light....The trip is not a complete therapy. It's just a catalyst for some kids, the beginning of an evolutionary process. When they get back to the street, they make some good steps and they make some bad ones. But at least it gives them something to work with (Flood, cited in Krajick, 1978, p.34).

Methodological Issues

The area of wilderness-adventure therapy poses some serious problems that have limited research efforts. These difficulties affect most of the studies in this review and many of them apply to research in the broader field of adventure education as well. These will be discussed below to make the reader aware of the major issues before proceeding to the literature review.

A logical place to start is with the confusion on what constitutes wilderness-adventure therapy. Perhaps, this is best evidenced by the lack of consensus on a name for the field. It

has been referred to by such names as adventure education (e.g., Colins, 1980), wilderness experiential programming (e.g., Winterdyk, 1980), wilderness therapy (e.g., Gibson, 1981), wilderness-adventure therapy (Kimball, 1986), environmental stress-challenge (e.g., Wichman, 1976), outdoor rehabilitation (Hunter, 1984), survival training (Berube, 1977), and Outward Bound adaptive programming (e,g, Burton, 1981). This confusion is exacerbated by the great variation in procedures among programs. Winterdyk (1980) states that the lack of a clear definition of variables defining "adventure program" threatens the theoretical validity of research. Certainly, it makes standardization and replication difficult (Kimball, 1986).

As previously discussed, the field lacks an established theoretical base, which threatens construct validity. This has resulted in a failure to clearly define relationships between independent and dependent variables which threatens internal validity. Without a clear definition and understanding of the processes operating in adventure therapy, one is left with a vague independent variable. This obscures causal relationships and can lead to poor interpretive and predictive validity as alternative explanations become more plausible (Winterdyk, 1980).

Common to much field-based research, the selection of participants is limited by the need for administrative control. Most programs require voluntary participation, and an interview is typically conducted to assure that the individual has sufficient motivation (e.g., Gaston, 1978; Wright, 1982; Zwart, 1989). Naturally, this limits the external validity of research

findings since subjects are selected based upon their likelihood to benefit from the intervention. Generalization is also restricted by the use of predominantly male subjects. In addition, sample sizes are often small due to the small groups and the difficulty in collecting data with this population and in this setting. Regardless, statistical conclusion validity is threatened by the small number of subjects.

Measurement

There are a number of measurement issues which recur repeatedly throughout the literature. First of all, the research has relied heavily upon the self report of participants. Concerns about obtaining valid information from the subject under study is particularly relevant with a population known for its uncooperative and manipulative nature (Zwart, 1988). Respondent bias might also be a serious problem in that students may be anxious to please their instructors (Gibson, 1981; Zwart). Another factor to consider is subjects' expectations to improve as a result of program participation or due to involvement in an experiment, that is a Hawthorne effect (Wichman, 1983; Zwart). Responses might also be tainted by cognitive dissonance, in that students attempt to rationalize their participation in a very stressful experience (Gibson). Zwart questions the participants' ability to judge how they have been influenced by such an experience. It is usually quite powerful and may lead to attributing a multitude of positive effects to the program.

In general, the research lacks multi-modal and multi-method assessment. The complexity of this population's problems

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requires assessment of the total ecosystem (Skipper, 1974). A great deal of valuable information is lost if families, schools, employers, and social agencies are not contacted. Although there have been some attempts to incorporate multi-method assessment, inadequate measures are often employed. Many of the self report measures suffer from questionable validity and reliability which is especially evident with instruments developed by the authors (e.g., Baer, Jacobs & Carr, 1975; Stewart, 1978). Observational measures have been used, but behavioral ratings are usually completed by the instructors which may bias the results (e.g., Cyntrynbaum & Ken, 1975; Zwart, 1988).

A major criticism of the research is the focus on limited outcome measures (e.g., Hunter, 1984; Winterdyk, 1980). For the most part, these have been confined to a handful of personality variables and recidivism. Self concept has been, by far, the most commonly studied variable (Burton, 1981). This poses a real challenge to programs and evaluators because it is a difficult construct to measure (Marsh, Richards & Barnes, 1986; Winterdyk). It is also considered a stable construct and not very sensitive to short-term change (Berube, 1977; Combs & Snygg, 1959; Winterdyk). It is likely that these factors have contributed to the mixed findings.

The emphasis on recidivism has been criticized on a number of accounts. For one, it is often poorly defined and definitions vary among studies (Cardwell, 1978; Hileman, 1980). It is also commonly known to be subject to reporting biases both on an individual and systems level (Shulman, 1977). Thus, recidivism

rates are more a reflection of official law enforcement activity than delinquent behavior (Boudette, 1989). Winterdyk (1980) does not feel that it is a fair measure of a program's success or failure because alleviating recidivism is not a primary goal of adventure therapy programs. Hileman believes that the problem is not the study of recidivism but rather the design. He criticizes the approach for its elementary form of measurement, whereby the variable is dichotomized into recidivist or non-recidivist. This does not take into account differences in the seriousness of recidivism behavior. Therefore, therapeutic gains may be achieved without affecting recidivism. This improvement might be reflected in the number, type, and severity of offenses: information which is generally not analyzed (Stewart, 1978).

This focus on outcome measures has been at the virtual exclusion of process evaluation. There has been a general lack of attention directed toward process variables, for example, course structure, activities, course length, instructors, and amount of debriefing (e.g., Burton, 1981; Ewert, 1977; Winterdyk, 1980). The failure to study process variables has greatly contributed to the lack of theory development in the field (Boudette, 1989; Ewert, 1976). Of course, it should be acknowledged that studying process is very difficult, and even more so in field-based research. It is further complicated in an adventure program where there are so many fluctuating variables beyond the control of the evaluator, including weather, instructor style, group dynamics, and level of stress. Achieving experimental control over such extraneous variables is nearly

impossible and this seriously limits all types of research in this field (Kimball, 1986).

Test administration problems also plague evaluators of adventure therapy programs. The timing of the administration is a typical pitfall for which few studies account. Pretests are routinely given upon the arrival of the participants. Although most programs are voluntary, the majority of students do not have pleasant alternatives to choose from. Many are angry and most are at least anxious and uncertain about the challenge that lies ahead (Marsh et al., 1986). These conditions do not foster representative self reports. Perhaps, administering the posttest on graduation day, as commonly practiced, is even more detrimental. Marsh et al. strongly warn against the potential bias of this phenomenom which they labeled post group euphoria (PGE). It is a pervasive problem because researchers cannot even control for PGE with a true experimental design. Nor does follow-up testing necessarily detect the threat to the validity of the conclusions since short-term gains may be valid even if they are not maintained. Evaluators must also contend with the effects of poor testing conditions. Most of the textbook recommendations are violated (e.g., comfort, lighting, distractions) and in some cases, the subjects may be even further stressed by hunger or inclement weather (Golins, 1980).

As mentioned earlier, the uncooperative nature of this population makes them very difficult to study. Obtaining parental involvement poses yet another challenge. Student mortality during follow-up is very high due to apathy as well as

difficulty in tracking such clients (e.g., Gaar, 1981; Kelly & Baer, 1971). These same characteristics present problems enlisting the cooperation of control groups (e.g., Zwart, 1988). As a result, researchers often use what Plouffe (1980) describes as narrowly defined follow-up measures that are easy to collect but of limited usefulness, such as, employed, in school, arrests. She criticizes that they lack the personality and behavioral measures that would indicate the participant's level of adaptation.

Design

The most critical design issue is that the field-based nature of the research makes random assignment unfeasible. Agencies are generally not willing to abdicate their right to select youth for admission (Zwart, 1988). Thus, most researchers are forced to adopt a quasi-experimental design, at best. This automatically lowers the level of interpretation from causal to inferential (Winterdyk, 1980). Campbell and Stanley (1963) warn that researchers employing quasi-experimental designs must control as many threats to internal validity as possible. Most studies fail to do this as evidenced by the preceding discussion of test administration, limited measures, lack of multi-modal and multi method assessment, and inattention to process variables.

The most obvious violation of this advice is the absence of a control or comparison group which is considered a major threat to internal validity and makes results very tenuous (Cambell & Stanley, 1963). Plouffe (1980) comments that this is especially relevant in the study of adolescents where maturational and

developmental variables may account for substantial proportions of change. Gibson (1981), on the other hand, argues that the lack of a control group in adventure research is not a serious problem. He explains that no real maturation will occur over such a short time period. Nor is history a threat since the group is isolated from external events, and anything that occurs on the course is considered part of treatment. He does acknowledge the threat of a testing effect but feels it is unlikely to account for considerable changes. However, Gibson fails to consider follow-up testing where maturation and history would clearly become serious threats to validity.

Long-term follow-up testing is often lacking in adventure therapy research, making the durability of change questionable. Once program effects have been documented, it would seem important to demonstrate that these effects are maintained (e.g., Burton, 1981; Plouffe, 1980; Wichman, 1983). The follow up testing that has been done is frequently limited as mentioned above (Plouffe, 1980). Admittedly, this is a difficult population to follow, as previously discussed.

A final issue that warrants attention is the potentially conflicting roles of program implementer and evaluator. There is a substantial amount of "in house" research in this field. Much of the research has been conducted under the auspices of Outward Bound and/or by former instructors or administrators. (e.g., Andrew, 1977; Boudette, 1989; Kimball, 1979). Such evaluators are commited to this type of intervention and this could potentially bias their findings (Ewert, 1987; Skipper, 1974).

Review of Empirical Studies

One-Group Pretest-Posttest Design

The largest number of studies employed the one-group pretest-posttest design (Andrew, 1977; Cyntrynbaum & Ken, 1975; Gaar, 1981; Gibson, 1981; Hileman, 1979; Kelly & Baer, 1969; Kimball, 1979; Porter, 1975; Stewart, 1978; Weeks, 1985). The most conclusive finding of researchers employing this type of design was improvement in the participant's perception of self. Utilizing a variety of self report measures, five of the seven studies that examined this construct reported significant increases in self esteem or self concept after wilderness-adventure interventions (Gibson; Kelly & Baer; Kimball; Porter; Weeks). These programs were less than a month in duration, with the exception of one intervention which lasted 6 months (Weeks). An observation by Porter that applies to all of these studies is that changes in some areas of self esteem (or self concept) but not others, demonstrates that the results are not simply due to response bias. Andrew did not find any significant change in the self concept of troubled youth. This may have been a result of her analysis since she focused on global self concept scores only and ignored subscale differences. Although Cyntrynbaum and Ken found few clear and consistent changes in self concept, all students rated themselves as increasingly more powerful, hard working, loyal, trusting and satisfied.

Another area that received considerable investigation and

produced positive findings in the majority of the studies was social attitudes. Four researchers (Andrew, 1977; Kelly & Baer, 1969; Hileman, 1979; Stewart, 1978) used the Jesness Inventory, a popular measure of personality designed for use with juvenile delinquents, and three reported improvement in social attitudes (Kelly & Baer; Hileman; Stewart). A comparison of their findings reveals that all three discovered significant increases on the value orientation and alienation scales while significant gains were noted in two studies on the withdrawal scale (Hileman; Stewart) and in two studies on the social maladjustment scale (Hileman; Kelly & Baer). These results support the findings of increased self esteem and suggest that the participants were feeling more socially acceptable and less identification with the delinquent subculture at the end of the therapeutic intervention. Once again, Andrew reported no significant change. This may have been due to the shorter duration of the program (2 weeks) or possibly to the fact that the participants in her study were not adjudicated and therefore, may not have felt as socially isolated from the outset.

Further support for improvement in social adjustment was reported by other researchers. Cyntrynbaum and Ken (1975) noted large shifts on a behavior rating scale and indicated that students described themselves as less anxious and defiant. Gaar (1981) specifically measured participants' levels of interpersonal trust and found a significant increase over the 26 day course, and Stewart (1978) observed continual improvement in trust relations between the pretest and 6 month follow-up.

Contrary to her hypothesis, Gaar found increased trust to be correlated with increased externality on a measure of locus of control. She interpretted this relationship as adaptive externality that was a result of the high level of interpersonal dependence required for success in this unique environment.

Additional validation of social adjustment was offered by Gibson (1981) who reported significant increases in interpersonal competence of participants as measured by behavioral ratings from instructors and referring agents. In a study of a 6 month wilderness-adventure alternative to probation, Weeks (1985) found that students improved significantly in interpersonal effectiveness. These gains were maintained at a 3 month follow up. In spite of increased trust levels, Gaar (1981) reported maladaptive interpersonal interactions at course end as indicated by increases in a measure of interpersonal distance. However, at a 3 month follow-up, a reversal among the 14 subjects tested (of original 29) produced a significant positive change. Gaar concluded that an adjustment period was necessary before subjects were able to apply their positive experiences from the wilderness to more generalized aspects of their interpersonal relations.

Other researchers also reported an increase in positive effects at follow-up. Although Porter (1975) only allowed 6 weeks before retesting, he found further increases in self esteem. Unstructured interviews with guardians supported the positive change. It is noteworthy that Porter's study included younger children (8-15) compared to the typical 15 to 17 year old participant. Stewart (1978) reported continuous improvement in

trust relations, satisfaction with self and others, and willingness to acknowledge unpleasant events over the 6 month follow-up period. Stewart did not explore the possibility that the increased effects were due to a systematic follow-up program. The authors suggested that it takes some time for the participants to integrate the changes but once internalized, greater improvement is achieved.

In a one group posttest design, The Florida State Department of Health and Rehabilitation (1978) conducted an evaluation of a wilderness-adventure program that treated adjudicated youth for the state. They reported that 90 percent of the sample completed the program, 60 percent returned to school or work, and 28 percent had been recommitted to the correctional system 12 months after graduation. It was also noted that those with previous commitments had a higher rate of graduation from the program than offenders committed for the first time. The author explained that the program was designed for individuals who chronically fail and hypothesized that they have a greater desire to change. Kimball (1979) also examined recidivism and found a 10 percent reconviction rate after 3 months which increased to 17 percent at 9 months. Although he did not have a comparison group, the rates are much lower than national averages (Kelly & Baer, 1971). This seems especially noteworthy since 32 percent of the sample had 3 or more prior offenses and 82 percent of the sample had committed felonies.

As discussed in the methodological section, the lack of a control group threatens the validity of the above studies and makes

it difficult to draw conclusions from these findings. There are some aspects of these studies that deserve mention in addition to the outcomes previously discussed. In order to examine the adventure therapy process, Andrew (1977) developed a comprehensive model to evaluate program operations and inputs, in addition to outputs. She designed a program processes checklist and employed multiple observations as well as multiple observers to increase reliability. Kimball (1979) compared the patrols comprising the experimental group with a between groups analysis in his study of self concept and found no differences. Although the cell sizes were small, his findings suggest that fluctuating variables (e.g., weather, group composition, instructor style, etc.) did not have a substantial effect. Gibson (1981) identified 13 predictor variables and examined the relationship between these background and personality variables and success in the program in an attempt to determine what type of individual benefits most from adventure therapy. However, no significant relationships were found. Gibson concluded that the lack of a consistent relationship between predictor variables and success in the program suggests that adventure therapy may be applicable to a broader range of youth than previously recognized.

Non-Equivalent Control Group Design

A number of studies utilized this quasi-experimental design (Birkenmayer & Polonoski, 1976; Gaston, 1978; Kraus, 1982; Svobodny, 1979; Weeks, 1985; Wright, 1982; Zwart, 1988). Although they were not as conclusive in their findings regarding

self perceptions as those studies previously discussed, the majority found that participants in wilderness-adventure programs experienced significantly greater gains in self concept and related constructs than comparison subjects (Gaston; Svobodny; Wright). Compared to wait list controls, Wright found strong support for gains in the experimental group in self esteem and self efficacy, as well as physical fitness, which he hypothesized to be related to self concept. Gaston also used wait list controls, through the employment of a recurrent institutional cycle design. She reported that wilderness program participants had significantly more self confidence and a better self image after the intervention than controls. This design utilizes between groups analysis which demonstrated that the results persisted across different groups of participants with different instructors and with variations in course content. In her comparison of a 90 day correctional camp modeled after Outward Bound to a community probation program, Svobodny found that the camp participants showed a significantly greater improvement in self concept.

There are some methodological concerns which raise questions about the conclusiveness of these findings. Wright (1982) was only able to enlist 12 subjects in his control group. Gaston (1978) neglected to address the 25 percent attrition rate, which can be particularly threatening with the use of wait list controls if not adjusted for. In Svobodny's (1979) study, the adventure experience was part of a multifaceted treatment program including education, work recreation, and adventure. However,

she made no attempt to isolate the adventure component in her evaluation.

These concerns are compounded by the fact that other researchers did not find that the adventure intervention had a more significant effect on self perceptions (Birkenmayer and Polonoski, 1976; Zwart, 1988). Birkenmayer and Polonoski compared a group of institutionalized delinquents who were transferred to an adventure program with a control group who remained institutionalized. On a measure of self esteem, both groups improved, and there were no significant differences. It warrants mention that during a follow-up interview approximately 6 months later, a significantly greater number of adventure graduates had positive feelings about their experience than control subjects. In a particularly well-designed study, Zwart failed to find a significant difference between adventure participants and matched controls on self concept. However, he noted that the group means were higher than the norms and hypothesized that a Hawthorne effect was influencing the results.

Several researchers studied the locus of control construct hypothesizing that the adventure intervention would help participants to feel more in control of their lives, resulting in a shift toward a more internal orientation (Gaston, 1978; Wright, 1982; Zwart, 1988). Gaston and Wright both found that students who had completed a wilderness adventure program became significantly more internal than wait list controls. On the other hand, Zwart (1988) found no change in the experimental group but a significant increase in internality for the control

group, who had spent 26 days in detention. Once again, Zwart was led to question the validity of self report measures with this population and was especially concerned with the "guinea pig complex" evidenced by the uncooperative nature of the control group. He concluded that the findings suggest the need to rely more heavily on inferential methodology in measuring change with delinquent youth.

Zwart (1988) provided support for this recommendation through behavioral ratings of the adventure participants. The instructors' ratings showed significant changes on 13 of 14 scales in a more socially appropriate direction. This inferential measure evidenced more functional interpersonal behavior even though no effect was found on a self report measure of interpersonal relations. However, Zwart warns that observer bias and the lack of comparison data tempers the conclusions. Kraus (1982) did not find any significant difference in aggressive or assertive behavior, as measured by self report, between "emotionally disturbed youth" who had completed a 10 day adventure experience and those waiting to attend. She concluded that the intervention was not long enough to change such ingrained interpersonal styles.

In a unique approach, Kraus (1982) illustrated the value of goal-setting to outcome research. She evaluated subjects on individual therapeutic goals according to the Goal Attainment Scaling methodology (Kiresuk & Sherman, cited in Kraus, 1982). The author set one to five goals for each subject with a professional from the sponsoring agency, which included group

homes, juvenile court, and a mental health center. All other staff were blind to the goals, as were the raters who evaluated each participant's progress with the parent or guardian 22 days later. The results demonstrated that the experimental subjects had significantly surpassed controls in goal attainment. Kraus concluded that the adventure intervention helps disturbed adolescents to make changes in behavior. Although the methodology employed is time consuming, Kraus praises its flexibility and individual sensitivity. She emphasizes its usefulness for short-term programs in particular since standardized instruments often miss slight changes in behavior.

In another innovative effort, Gaston (1978) selected a random subsample of experimental subjects and administered a structured interview to assess coping strategies in problematic interpersonal situations. During the posttest, participants were able to generate significantly more effective problem solutions. Additionally, a trend toward fewer responses containing verbal or physical aggression was noted following the intervention. Wright (1982) also tested problem solving ability but failed to find increases in problem solving skills. These results were confirmed by weak reponses to an open-ended question about problem solving included in the posttest. The author found this disturbing since it was an important goal of the program and theoretically tied to participants' opportunities for future success.

A number of researchers employing the non-equivalent control group design studied recidivism but only two included a pretest

(Birkenmayer & Polonoski, 1976; Weeks, 1985). Weeks compared participants in the 6 month adventure program mentioned earlier to a control group receiving traditional probation on recidivism and school behavior. Six months following the program, both groups showed a significant decline in crimes, but there was no difference between them. Of the various school variables examined, a reduction in absences for the experimental group was the only significant finding. Birkenmayer and Polonoski reported that the subjects who had participated in the adventure alternative had a significantly higher rate of recorded encounters with the law after 1 year than the control subjects who had remained in the training school. The results of a delinquency scale administered at pretest indicated that the experimental group was more prone to delinquency prior to the intervention. Further analysis revealed that most of the experimental subjects were serious behavior problems within the referring institutions, suggesting strong bias in group assignment.

Non-Equivalent Control Group Design - Posttest Only

This type of design is very popular for studying recidivism, and the findings are remarkably consistent. All of the researchers employing the design found that the wilderness adventure intervention had a significantly positive effect upon recidivism behavior (Cyntrynbaum & Ken, 1975; Hileman, 1979; [although these studies employed a previously discussed design, a control group was added for recidivism] Kelly & Baer, 1971; Kelly, 1974; Plouffe, 1980; Wilman & Chun, 1973). The landmark

study of wilderness adventure programming in the treatment of juvenile delinquents was conducted by Kelly and Baer in a 2 year demonstration project beginning in 1966. One hundred twenty adjudicated adolescents of the Massachussets Division of Youth Services were either treated in a routine manner, that is institutionalized or paroled, or sent to Outward Bound. Experimental and comparison groups were matched on age, IQ, race, religion, offense, area of residence, and number of previous commitments. The Outward Bound participants were placed in separate heterogeneous groups with non-delinquents. One year later only 20 percent of the experimental group had been recommitted, as opposed to 42 percent of the control group, and a 50-60 percent nationwide recidivism rate for institutionalized delinquents.

Based on these findings, Massachussetts developed its own wilderness-adventure program. In a similar study comparing this adventure alternative to institutionalization, Wilman and Chun (1973) replicated Kelly and Baer's (1971) results. In addition, they found that the adventure participants tended to stay out of trouble longer. Of those control subjects who recidivated, 72 percent had done so within the first 6 months, compared to only 38 percent of the experimental recidivists. Although Kelly and Baer (1969) concluded that non-delinquent peers may have been an important influence on the results, the participants in the Wilman and Chun study were in homogeneous groups. Thus, the grouping does not appear to be a critical factor.

Kelly and Baer (1971) found that background variables such

as age of first court appearance, presence of both parents in the home, first institutionalization, and type of offense were important factors related to recidivism. They suggested that the intervention may have a greater impact on first time offenders acting out in response to an adolescent identity crisis than on juveniles with a long history of delinquent acts who may be more characterologically deficient. Both Kelly and Baer and Wilman and Chun (1973) observed that the adventure intervention was more successful with delinquents who committed crimes against person or property than with incorrigible or runaway youth.

Kelly (1974) performed a 5 year follow-up study of the original subjects (Kelly & Baer, 1971) and found that the difference in the recidivism rate was no longer significant. However, the direction certainly supports the adventure intervention (38% vs. 53%). Kelly did find a significant qualitative difference between the two groups. He reported that 80 percent of controls who will recidivate do so within the first year, whereas the greatest increase in recidivism for the experimental group occured at the end of the second year. This confirmed Wilman and Chun's (1973) findings that adventure graduates are able to sustain themselves longer in the community. Furthermore, Kelly noted that the experimental group committed significantly less crimes, the crimes were less serious, they spent less time in detention, and the cost to the state for remedial and custodial care was significantly less. Although Hileman (1979) failed to find a difference in the number of recidivists between experimental and control groups 7 months

after an adventure intervention, he also reported less crimes and less serious offenses for the experimental group. Kelly emphasized the need for follow-up activities to nurture and sustain the positive growth that occurs as a result of an adventure experience.

In an attempt to assess the long-term impact of a wilderness-adventure intervention on social and personal functioning, Cyntrynbaum and Ken (1975) administered an outcome questionnaire to participants before and 6 months following an adventure program. Although the authors would not report statistical significance due to weaknesses in the design, they indicated that graduates of the adventure program were less likely to be in trouble with the law, less involved with drugs and alcohol, and less dependent on social service agencies than a roughly comparable control group. They also noted marked decreases for the adventure group in all of these areas when compared to their pretest data. The greatest difference between the groups was in recidivism with only 11 percent of the experimental group being arrested during the 6 months as compared to 30 percent of the controls. The authors warned that the systematic follow-up program makes it difficult to determine how much of these long-term effects can be attributed to the adventure experience. In addition, since all of the data was obtained by self report, response bias must be considered and contributes to the tentativeness of the conclusions.

Plouffe (1980) also took a more comprehensive look at graduates' level of functioning in a 6 month follow-up of

Gaston's (1978) study. She employed a multi-method approach in her examination of locus of control, self perceptions, and deviant behavior. She found that subjects who had completed the adventure program were significantly more internal, more positive in their self perceptions, less deviant, and arrested less often than a matched control group. There had been no change in the experimental group's mean locus of control score since the posttest which indicates that the effect of the intervention on orientation was very powerful. A highly significant relationship between internality and positive self regard was detected. Furthermore, a significant relationship between greater parent involvement in follow-up services and increases in subjects' internal orientation was revealed. Once again, the influence of the follow-up program must be considered when interpretting these findings. However, it is interesting to note that no relationship was found between the amount of follow-up contact and behavioral gains. Plouffe found some evidence to suggest that the intervention is more effective for females and those in the pre (or early) stages of delinquent behavior.

Pretest-Posttest Control Group Design

There are only three studies of wilderness adventure programs with delinquent youth that employed true experimental designs (Boudette, 1989; Skipper, 1974; Winterdyk, 1980). All of these studies had excellent methodologies utilizing multi-modal and multi-method assessment with good convergent validity. They each included follow-up studies, as well, to assess the long-term effects of the programs. However, none of the studies produced

any conclusive positive evidence for the effectiveness of the wilderness-adventure intervention in the treatment of delinquent youth. It is rather damaging to the field that the best controlled studies were unable to offer substantial support for the positive findings reported from less methodologically sound research.

Boudette (1989) and Winterdyk (1980) each compared a wilderness-adventure intervention with traditional probation to determine its viability as an alternative or supplemental treatment for adjudicated youth. On measures of self esteem, neither researcher found significant differences. However, Winterdyk did report a significant positive change for the experimental group on self awareness, and Boudette noted a similar trend, although it did not reach significance. Both studies measured social attitudes with the Jesness Inventory. Winterdyk found significant changes on only two scales, alienation and social anxiety, for the experimental group but not for the controls. These changes were no longer significant at the 6 month follow-up. Boudette, on the other hand, reported significant changes for both groups on nine of ten scales. An exploratory trend analysis showed that the improvement was consistently more pronounced for the adventure group on all scales.

Neither Boudette (1989) nor Winterdyk (1980) found any significant differences between the groups on recidivism at 3 and 6 month follow-ups, respectively. However, Winterdyk did note a tendency toward fewer and less severe offenses for the

experimental recidivists. Winterdyk gathered data from parents and staff that suggested adventure particpants had an improved attitude and ability to get along with others. Based upon cross sectional support and other improvements noted, the author concluded that the intervention is a viable resource, in spite of inconclusive findings. Boudette concluded that her study provided evidence that the adventure component improved the effectiveness of a traditional probation program. However, she advised caution since this improvement was detected through a trend analysis which, though highly suggestive, was not supported by the behavioral data, that is, recidivism.

Skipper (1974) studied the effect of a wilderness-adventure program on 9-14 year old boys who were experiencing social difficulties in school. The students were assigned to conduct problem or withdrawn groups and then randomly assigned to treatment or control groups. A significant increase in self esteem was found for the experimental subjects and not the controls but was not maintained at a 5 month follow-up. Skipper also reported decreased behavior problems and increased desirable behavior for the adventure participants, but these results were not significant. In examining the differential efficacy of the intervention for identified subgroups, younger and withdrawn boys tended to show more improvement than older and conduct problem boys.

Skipper (1974) summarized that the overall trend in the findings was for improvement from pre- to posttest, with a decline at follow-up that was still somewhat better than the base

rate at pretest. Winterdyk (1980) also noted this "wearing off" effect in that the few significant differences found dissipated by follow-up. In contrast, Boudette (1989) observed that improvements reported for both groups continued at the three month follow-up. She hypothesized that the ongoing contact all subjects had with their probation officers served as a form of follow-up program.

Although these studies lacked significant findings, their outstanding methodology was exemplary, and each study made a unique contribution to the literature. Boudette (1989) attempted to expand theory development by testing a widely accepted model of the adventure therapy process with delinquent youth by Walsh and Golins (1976). Although she found no evidence for the predicted increase in self esteem, the trend analysis did demonstrate increased self awarenesss and sense of belonging in accordance with the model. She also tested Walsh and Golins' notion of motivational readiness as a prerequisite for change but it was not supported. Boudette suggests that willingness to change is not as important as a willingness to participate.

Skipper (1974) also attempted to increase understanding of the therapeutic process by employing participant observers to appraise critical incidents and differential effectiveness of various types of instructor-student interaction. Facilitative instructor traits were identified as enthusiasm, involvement, caring, sense of humor, and controllable anger, whereas, excessive anger was observed to be particularly deleterious. In addition, three primary aides were noted in promoting behavioral

alternatives: group discussions, instructors serving as models, and mastering challenges of the wilderness environment.

Winterdyk (1980) made his contribution in the area of measurement. He expanded the measurement of recidivism beyond past limitations with excellent convergent validity. He gathered data on police contacts, arrests, and reconvictions through self report, parent report, probation officer report, as well as official records. He also included the perceptions of significant others in his assessment of change and obtained information from narrative reports of parents and instructors.

Other Studies

There are two studies which cannot be classified under any of the above designs but are, nonetheless, worthy of mention. Baer, Jacobs and Carr (1975) performed a correlational study examining the relationship between performance in an adventure program and recidivism. At the conclusion of the course, instructors evaluated participants on a 40-item rating scale. Students were awarded a certificate of achievement, unless they had seriously failed to comply with program objectives. Ninety percent of the students who had not received certificates were recommitted within 5 years compared to 30 percent who had received certificates. An analysis of the rating scale indicated that maturity, leadership and effort were significantly correlated with non-recidivism. Kimball (1979) reported similar findings, noting that all six of the subjects in his study who did not graduate were reconvicted within 3 months. These authors concluded that performance in an adventure program is a

useful predictor of recidivism.

In a fairly comprehensive critical review of the literature on Outward Bound and related programs, Burton (1981) performed a meta-analysis of 72 studies. His findings offer some insight into how the empirical literature on wilderness-adventure interventions with delinquent youth compares to the more general field of adventure education. The analysis revealed that studies on juvenile delinquents comprise 20 percent of all populations studied and were more methodologically sound than the general research. In addition, Burton found that these studies showed the most gains.

A summary of the characteristics of the studies reviewed here can be found in Table 1.

Insert Table 1 about here

Discussion

Although there is substantial support for the positive impact of wilderness-adventure interventions with delinquent youth, the findings must be viewed with caution. The results of the more methodologically sound studies were clearly less conclusive. This phenomenom is not unique to adventure programs with delinquent youth. In his meta analysis of studies across the field of adventure programming, Burton (1981) concluded: "...when methodologically adequate studies are conducted, the effects of Outward Bound are still positive, but less substantially so than with studies of less adequate methodology"

(p. 32).

The question is how to make sense of these inconsistent, and sometimes contradictory, findings. According to Jackson (cited in Burton, 1981), there are three reasons for varied findings among studies: sampling bias, methodological inadequacy, and differences in characteristics. Sampling bias refers to the notion that within any given set of studies, some would fall into the statistically significant by chance. This does not seem to be a factor here since at a .05 level of significance, only one study would be expected to be significant by chance.

The problem of methodological adequacy is clearly relevant to this review. Many concerns were raised in the methodology section, as well as throughout the review, and the researchers themselves often noted weaknesses along with their tentative conclusions. This is most apparent in the numerous studies lacking control groups. In his review of the adventure education literature, Godfrey (1974) classified much of the research under the heading "Have test, will travel" (p. 4). It is obvious from the present review, as well, that many of the studies of adventure therapy continue to suffer from insufficient care taken in the design of the study, in identifying variables of interest, and in developing an appropriate methodology.

Differences in the characteristics of the studies is another concern that applies to this literature. Differences existed in research instruments, designs, populations and, most importantly, treatments. Kimball (1980) accounts for the variations in programs by the fact that this type of intervention with

delinquent youth is relatively new and still developing. The result is that standardization and replication are very difficult and this undoubtedly contributes heavily to the inconclusiveness of the research.

Another factor contributing to the inconsistency of the literature is the lack of continuity in the research. In his comprehensive review of the research on adventure programming, Shore (1977) criticized: "One finds a paucity of references to the suggestions of others in the Outward Bound literature, an oversight which could be costly in time and effort" (p. 60). In the studies reviewed here, there hardly appears to be an attempt to build upon the past work of others, nor do researchers seem to be learning from the mistakes of their colleagues (Ewert, 1987; Hunter, 1984). As Light and Smith (cited in Burton, 1981) observed, when faced with conflicting results, most researchers perform yet another study, each with the purpose of being the definitive study. However, the goal is seldom attained; instead, another piece is added to an increasingly complex puzzle. This seems to be an accurate description of the state of the research on adventure interventions with delinquent youth.

In spite of the inconclusive nature of the literature, there are some findings that are fairly consistently supported by the research. One such finding is improvement in the participant's perception of self. This is a primary goal of interventions with delinquent youth and has been widely studied by adventure researchers. The majority of the studies reported some evidence of improved self concept, self esteem, or self confidence. These

results are likely tempered by the resistance of self concept to change, especially in delinquents with their long histories of failure. Furthermore, Cave (cited in Kimball, 1986) believes that the change results in a more relistic perception of self, which would also make gains less evident. "This is not a simple up or down but in the direction of a realistic and positive view of self. Offenders are able to integrate faults with strengths, problems with assets, rather than see one or the other" (p. 12).

There was reasonably strong support throughout the research that participants demonstrated improvement in social adjustment. A relatively consistent finding was that of improved social attitudes after the intervention. These seemed especially related to attitudes toward others and appeared to reflect an increased feeling of social acceptance and sense of belonging. This would seem to be a logical outgrowth of the small group processes operating in an intensive wilderness experience. There was also substantial evidence to suggest that these changed attitudes translated into an improved ability to relate to others. This increased social adjustment is consistent with, and a natural extension of, improvement in self perception.

Perhaps, the most conclusive finding of all is that the wilderness-adventure intervention reduces the rate of recidivism among juvenile offenders. The vast majority of studies that examined recidivism reported significant reductions as shown in Table 2. Even those studies which did not find a significant difference between experimental and control groups, or had no control group, reported rates well below national averages (e.g.,

Boudette, 1989; Kimball, 1979; Winterdyk, 1980).

Insert Table 2 about here

There is also evidence to suggest that recidivists who have particpated in an adventure program commit fewer and less serious offenses. Considering the resistance of this population to traditional forms of treatment, the recidivism findings are impressive. Nevertheless, caution must be exercised in generalizing from the data. For one, sampling bias may be influencing these results. In addition, recidivism has been criticized as an inadequate measure of an intervention's success due to varying definitions, poor methodology, and the influence of political and economic factors (e.g., Hileman, 1980; Wichman, 1983; Winterdyk, 1980). However, it seems logical that shifting negative attitudes and behaviors to more socially acceptable ones would act as a catalyst toward reducing further delinquent tendencies (Winterdyk, 1980).

The number of inconclusive findings are too great to address each of them here, but the major inconsistencies in the literature will be discussed. One variable that produced mixed findings is locus of control. Although locus of control was not a highly studied variable in this review, it is of theoretical importance. It seems reasonable that obtaining a sense of mastery would help participants to feel more in control of their world and its reinforcers (Zwart, 1988). Garr's (1981) concept of adaptive externality is logical and interesting, but it does

not explain how other researchers found conclusive evidence of a shift toward a more internal orientation (Gaston, 1978; Plouffe, 1980; Wright, 1982). Instrumentation is unlikely to have influenced the results as all but one of the studies employed the same measure. Since both studies which did not support increased internality investigated the same program (Gaar, 1981; Zwart 1988), it seems likely that the conflicting results can be explained by differences in treatments.

Findings are also inconsistent with regard to improvement in problem solving ability. This is another variable which did not receive much study but has important theoretical, as well as practical, implications. As Wright (1982) stated:

> In order for the program to be really successful, the participant must not only take back to the community a set of memories about mastery experiences in the wilderness but a set of skills to solve problems which become the stock for creating future experiences of mastery in the community. (p. 110)

The importance of good problem solving skills to the future adjustment of the participants cannot be overstated. Although Gaston (1978) did find significant increases in problem solving ability from pre- to posttest, there is no doubt that this is a difficult construct to measure, which may contribute to the mixed findings. Wright feels that the lack of conclusiveness in demonstrating improvement in problem solving suggests the need to be more intentional in teaching problem solving skills.

The area of behavior change is another fraught with

inconsistent findings, and this has been the subject of much debate. Some people in the field seem to believe that there has been too much research emphasis on attitude change at the expense of behavior change, which is the real variable of interest (e.g., Burton, 1981; Kimball, 1979). Is a change in attitude really meaningful if an associated change in behavior cannot be demonstrated? Kimball warns that statistically significant does not mean behaviorally significant. On the other hand, Cardwell (1978) asserts that the key to the future of the child lies with the adoption of changed attitudinal values toward the community. Overall, the lack of significance on behavior rating scales suggests that adventure programs change attitudes and self perceptions more readily than behaviors (Burton, 1981). Some have argued that it takes time to translate these cognitive changes into behavior (Gaar, 1981; Porter, 1975; Stewart, 1978) This notion has been substantiated by several follow-up studies (Gaar; Porter; Stewart), but others have reported contradictory findings (Skipper, 1974; Winterdyk, 1980). For the most part, behavior change remains theoretical, although lowered recidivism clearly lends support to the claim (Kimball, 1979).

A related issue that is equally controversial regards the durability of change. The majority of studies did include follow-ups, performed anywhere from 6 weeks to 14 months after the intervention. The results were just as varied ranging from maintenance of effects, to increased effects, to wearing off of effects. There does not appear to be a clear relationship between the amount of time elapsed and the duration of the

effect. Again, some researchers claim that time is needed for the participants to integrate the changes and they predict greater improvement once this has been internalized (Porter, 1975; Stewart, 1978). However, this does not account for the "wearing off" effect that other evaluators have observed (Skipper, 1974; Winterdyk, 1980). They theorize that the environment to which the participant returns does not provide reinforcers to sustain improved behavior and attitudes. Follow up programs are frequently recommended to help maintain changes and to alter expectations and reinforcers in the adolescent's natural environment. The existence of a systematic follow-up program does seem to be correlated with lasting effects and may explain some of the contradictory findings (Cyntrynbaum & Ken, 1975; Plouffe, 1980; Stewart, 1975). This would appear to have major implications for the field and will be discussed in the conclusion section.

Attempts to predict what type of individual responds best to wilderness-adventure therapy have also yielded inconsistent information. Kelly and Baer (1971) found that the adventure intervention seems to be more effective with delinquents who have never been institutionalized, whose first court appearance is after the onset of puberty, who live with both parents, and who commited crimes against person or property (vs. status offenders). Wilman and Chun (1973) identified different variables but arrived at the same conclusion: the intervention seems to have greater impact on first time offenders acting out in response to an adolescent identity crisis than on juveniles

with a long history of delinquent acts who may be more characterologically deficient. This information is not particularly enlightening as it seems likely that multiple offenders from broken homes with asocial or character disordered personalities would respond poorly to any treatment (Burton, 1981). To confuse matters further, Gibson (1981) included many of the same variables in his regression analysis, and found no relationship between predictor variables and successful performance. Nor did Wright (1982) find age or seriousness of offense to be related to outcome. Although not a controlled study, one evaluation even reported higher success rates with previously committed offenders than with first time commitments (Florida State Department of Health, 1978). It is evident that practical information about who benefits most from the wilderness-adventure intervention is lacking.

Some of the inconsistency of the findings may be attributable to the fact that the majority of the comparison groups were not "no treatment" control groups. The treatment that the comparison group received may have led to improvements that masked the effects of the adventure intervention. Although there is fairly strong support that wilderness-adventure therapy is a more effective alternative than institutionalization (Kelly & Baer, 1971; Wilman & Chun, 1973), the evidence is not so favorable when compared to probation (Boudette, 1989; Weeks, 1985; Winterdyk, 1980). Boudette contemplates that continued contact with a probation officer after the intervention may be the critical variable. The findings suggest that the adventure

intervention might better serve as a supplement to probation rather than an alternative.

Conclusion

After conducting the most extensive reviews of the adventure education field to date, Shore (1977) and Burton (1981) both concluded that in spite of the mixed findings, overall, the research generally supports the psychological benefits of participation in adventure programs. This same conclusion seems applicable to the literature on wilderness-adventure interventions with delinquent youth. There is substantial evidence to support its positive effect on self perceptions, attitudes, interpersonal relations, and delinquent behavior. It is a cost effective intervention as well (Golins, 1980; Kelly, 1974). This is even more apparent if recidivism and prosecution cost savings from diversionary referrals are considered (Kimball, 1979). Regardless of whether they recidivate or not, research reveals that participants feel positive about the experience (Birkenmayer & Polonoski, 1975; Golins, 1980). Such an effect defies measurement, but the experience remains as a resource that may one day be tapped.

One of the major questions that remains regards the duration of the effects. It seems obvious that follow-up programs can enhance the long term value of the intervention, and there is some empirical support for this. Researchers and practitioners alike have been stressing the need for such services. Wichman (1976) believes that they can provide the

opportunity to successfully transfer positive growth resulting from the intervention to a more realistic social situation. Follow-up might best be implemented as a mixture of recreation and entertainment with therapy and education. Activities might include mini wilderness outings, family camping weekends, graduate support groups, school and community presentations, as well as more general educational and recreational field trips (Skipper, 1974). The need for family involvement must be emphasized. Otherwise, the intervention joins hosts of others that have fallen into the trap of "blaming the victim". Ultimately, success with delinquent youth rests on the ability to modify attitudes and behaviors of significant others in order to influence reinforcers in the youth's natural environment. Many have complained that such comprehensive services are beyond the domain of wilderness-adventure programs. This may be true and perhaps, as some suggest, the adventure intervention is best viewed as a supplement to existing services rather than a complete treatment (Flood, cited in Krajick, 1978; Golins 1980; Kelly & Baer, 1971). However, if community agencies are to assume responsibiltiy for follow-up programs, it is essential that staff be trained in adventure therapy principles and processes in order to improve generalization (Cardwell, 1978).

Gaston (1978) offers a nice synopsis of the wilderness adventure intervention: "Any technique that seems to work with this population deserves careful attention....It is a relatively inexpensive and constructive approach. It avoids stigmatization, labelling, and incarceration while promoting a positive view of

self and program involvement" (p. 6). In closing, it is important to acknowledge that the wilderness-adventure intervention is not the panacea for delinquency in our adolescent population (Kelly & Baer, 1968). However, as Golins (1980) points out, it does offer a unique "escape to reality" for wayward youth and is a cost effective alternative to long term treatment and incarceration. He concludes that we need not join the legions of the skeptics who are given over a priori to pessimism when it comes to finding solutions to juvenile delinquency. Wilderness-adventure therapy offers a partial, tenable solution.

Future Directions for Research

It seems clear from this review of the literature that the field of wilderness-adventure programming has succeeded in justifying itself as a viable therapeutic intervention for delinquent youth. There have been enough outcome studies to support the overall effectiveness of the adventure intervention. The research should take a dramatic change in direction and begin to focus on the process of adventure programming (Burton, 1981). In other words, we know that it works; it is time to find out how and why. This information will improve the effectiveness of programming, contribute to theory development, and strengthen research.

Process evaluations are needed to determine the critical elements in the adventure therapy process. What specifically is causing the therapeutic impact, for example, the wilderness environment, physical or psychological stress, close peer

relations, special relationship with an adult, and/or removal from home? In order to study the process, program elements must be systematically varied to determine their impact and effectiveness. Some of the more obvious components requiring study are activities, course length, amount of debriefing, degree of stress, instructor style, and type of participant. Undoubtedly, this is difficult research to do and very disruptive, but nevertheless, essential. At this stage in its development, the field can no longer responsibly assume that <u>any</u> adventure program is good for <u>all</u> delinquents (Winterdyk, 1980).

Part of the difficulty in establishing research in this field is attributable to the limited practical information that researchers have offered to practitioners trying to make their programs work (Ewert, 1987). Process evaluation would enable researchers to tell practitioners how to make programs more effective. For example, it would be very useful to know what variables are important to the instructor's effectiveness. Such information would have valuable implications for selection and training. Information on how follow-up programs impact long-term effects would be of critical importance. Certainly, practitioners could use data on what type of participant is most likely to benefit from the intervention. Research on females is especially needed to determine if they respond as well as males. Investigations of dropouts might be useful as well, for determining who the intervention does not work for and why (Gibson, 1981).

The information provided by process evaluations will greatly

enhance the development of theory, which currently has a negligible research base. Theory development is critical to the advancement of the field and will benefit practitioners and researchers alike. Practitioners need theory to assist in course design, student selection, staff training and program development. Theory helps researchers to develop more meaningful research questions (Boudette, 1989). Wichman (1983) stresses the need for "a more sophisticated and accurate theory" that is able to generate logical and testable hypotheses (p. 15). Cardwell (1978) believes that replication is the key to effective programming. In order to achieve this, he states that one must specify target behaviors, processes, theoretical explanations, desired outcomes and expected levels of success. Obviously, this will require a comprehensive theory. Theory development should include application of psychological development theories. Boudette clearly demonstrated that theory testing can be successfully incorporated into outcome studies, and this needs to become a common practice.

The recommended emphasis on process evaluations does not imply the abandonment of outcome research. However, a shift in the focus of outcome studies is definitely indicated. There have been sufficient studies of self concept, and other variables deserve examination. Problem solving is certainly an important area that warrants more research, and goal attainment appears to be a promising and worthwhile target as well. There is also a need for further research on the relation between changes in self perceptions and attitudes and changes in behavior. Clearly, more

follow-up studies are necessary to determine the duration of change and how it might be enhanced. Multiple follow-up testing has been recommended to attempt to isolate a period of marked decline. This would enable programmers to specifically design follow-up activities to target these critical periods (Skipper, 1974).

In addition, more varied outcome measures are desparately needed. Past research has relied too heavily on self report measures. More multi-modal assessment, employing parents, teachers, and agency professionals, would help to increase convergent validity. Follow-up measures also need to be expanded to include information on psychological functioning, peer relations, family relations, school performance, employment, substance use, and deviant behavior (vs. strictly delinquent). The effect of adventure therapy on recidivism is well-documented but more specific information on the level of adaptation is definitely warranted.

The timing of test administration is a serious threat to validity that has been overlooked by researchers but demands consideration. Administering pretests a week before the course start is recommended to prevent confounding effects of emotion on the day of arrival (e.g., anxiety, anger, fear). When feasible, testing a month before the course begins and again on the first day would function like a time series design and might control for regression, spontaneous remission, and other threats to validity. Post group euphoria (PGE) is a threat of even greater severity that must be investigated. Positive findings should be

analyzed to determine if increases are uniform, possibly representative of a single, global halo effect, or distinct for certain variables. A powerful test would be to include "control" criterion measures that are likely to be impacted by PGE biases but are unrelated to the hypothesized effect of the intervention (Marsh et al., 1986).

Some researchers are recommending more qualitative analysis (e.g., Rowley, 1987; Zwart, 1988). Although appropriate for studying this type of intervention, it is unclear what the benefit of such research would be at this stage in the field's development. A review of the general literature produces a wealth of anecdotal and narrative accounts. Burton (1981) notes, "The Outward Bound literature is replete with glowing accounts of the impact of the experience upon the lives of the participants" (p. 7). The descriptive literature is no less abundant for adventure programs with delinquent youth (e.g., Brown & Simpson, 1977; Chase, 1981; Krajick, 1978). It seems quite evident to this reviewer that the research needs to become more empirical not less so.

Those in the field of wilderness-adventure therapy have come a long way in their attitude toward research, but it is necessary for the methodology to catch up with their enthusiasm. This review clearly demonstrates that the methodology has been weak, and this is a major factor in the inconsistency characterizing the research. As mentioned earlier, there are numerous methodological problems which are inherent to research in this field and difficult to surmount. However, researchers and

practitioners must commit the time and effort necessary to design and implement more methodologically sound research if the field is to establish a more conclusive body of literature. Further use of the recurrent institutional cycle design is recommended since it is very conducive to the staggered schedule of short term adventure programs and is a quasi-experimental design. It also provides between group analysis which can serve as a means of isolating process variables warranting closer examination. Furthermore, the design alleviates the need to recruit control subjects which has proven to be very difficult, time consuming, and unreliable.

In the long run, it is process evaluations that will lead to better research. Process evaluations will improve the understanding and theory of the intervention which will result in better programs. This, in turn, will encourage more standardization which will permit replication, ultimately leading to better research. Although simple to explain, it is difficult to implement. The challenge calls...like an unclimbed mountain.

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Table 1

Summary of Wilderness-Adventure Therapy Research

Designs
- ● - One Group Pretest-Posttest
- ■ - Non-Equivalent Control Group
- ▲ - Non-Equivalent Control Group-Posttest only
- ◆ - Pretest-Posttest Control Group

	Author	N	Program & Length	Target Group (F=Females)	Target Areas	Control	Follow-up	Measures	Results
●	Andrew 1977	49	adaptive Outward Bound 14 days	"troubled" males	self-concept social attitudes program process evaluations	no	no	Jesness Inventory Tenn. Self Concept Scale observation interview	no significant changes
	Baer, Jacobs & Carr 1975	60	Outward Bound 26 days	institution-alized delinquent males	performance recidivism	no	5 years	behavior rating scale	30% who received certificate of achievement recidivated vs. 90% who had not received certificate
■	Birkenmayer & Polonoski 1976	166	D.A.R.E. 90 days	institution-alized delinquent males	self-esteem social attitudes adjustment to community	yes	6 & 12 mos.	Bennet Self Esteem I Peterson, Quay & Cameron Scale of Delinquency structured interview behavior ratings school/work performance recorded contact with law	no significant differences at post --both groups increased self-esteem experimental group more positive about experience at follow-up sig lower recidivism for control group at 12 months.
◆	Boudette 1989	69	Project WAY (Outward bound) 24 days	delinquent youth (F=6)	self esteem self awareness sense of belonging motivational readiness recidivism	yes	3 mos.	Jesness Inventory Global Self-Esteem Scale Student Attitude Q. Instructor Rating Scale Achievement Motiv. Scale behavioral Measure	trend analysis showed more pronounced and consistent improvement in social attitudes for exp. group no evidence for necessity of motiv. readiness

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Author	N	Program & Length	Target Group (F=Females)	Target Areas	Control	Follow-up	Measures	Results
Cyntrynbaum & Ken 1975	103	Connecticut Wilderness School 20 days	delinquent males (F=37)	personality behavior legal problems substance use system dependency	yes (post hoc)	6 mos.	Background Info. Q. Semantic Differential Ratings Outcome Q. behavior ratings	marked changes in all areas for exp. group on self-report measures marked decrease in recidivism substance abuse and system dependency and less than comparison group
Florida State Dept of Health 1978	65	STEP (Outward Bound) 21 days	delinquent males	recidivism	no	12 mos.	recommitment to criminal justice system	90% completed course 60% returned school or work 28% recidivated
Gaar 1981	29	Wolfcreek Wilderness School 26 days	adjudicated males	trust locus of control interpersonal style	no	3 mos. (N=14)	Interpersonal Trust Scale Nowicki-Strickland I-E Interpersonal Adjective Checklist Comfortable Interpersonal Distance Scale	sig increase in trust - correlated with increased externality maladaptive interpersonal interaction at post but reversal at follow-up
Gaston 1978	135	Connecticut Wilderness School 19 days	pre-delinquent & delinquent youth (F=40)	self concept locus of control	no	(see Plouffe)	Clifford Self Confidence Scale Nowicki-Strickland I-E Behavior Problem Checklist Interpersonal Problem Solving Assessment Technique self image scale	positive changes in all areas
Gibson 1981	89	Connecticut Wilderness School 21 days	pre-delinquent & delinquent youth (F=23)	self concept interpersonal competence predict success	no	no	Rosenberg Self-Esteem Scale Bill's Index of Adjustment & Values Coopersmith Behavior Rating Form	sig. increase in self concept & interpersonal competence no relation between predictor variables and positive changes
Mileman 1979	48	Underway Wilderness Program 30 days	delinquent males	social attitudes recidivism	yes (post hoc)	7 mos.	Jesness Inventory number of petitions filed & seriousness of offense	sig increase in self awareness self-esteem, compassion, relation with adults-- no dif in rate of recidivism but less petitions and less serious for exp. group

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	Author	N	Program & Length	Target Group (F=Females)	Target Areas	Control	Follow-up	Measures	Results
●	Kelly & Baer 1969	60	Outward Bound 26 days	institution-alized delinquent males	self concept social attitudes	no	no	Jesness Inventory Semantic Differential	sig increase in real and ideal self concept and social attitudes (6 scales)
▲	Kelly & Baer 1971	120	Outward Bound 26 days	institution-alized delinquent males	recidivism	yes	12 mos.	reinstitutionalization	Sig lower recidivism for exp. group
▲	Kelly 1974	120	Outward Bound 26 days	institution-alized delinquent males	recidivism	yes	5 yrs.	reinstitutionalization	dif in recidivism no longer sig but strongly favors exp. group exp group committed sig less crimes and less serious crimes
●	Kimball 1979	56	adaptive Outward Bound 14-17 days	delinquent males	self concept recidivism cost analysis	no	3 & 9 mos. (recidivism only)	Tenn. Self Concept Scale reconviction	sig increase in self concept low rate of recidivism compared to national averages cost effective
■	Kraus 1982	91	adaptive Outward Bound 10 days	"Emotionally disturbed" youth (F=24)	aggressiveness assertiveness goal attainment	yes	no	Interpersonal Behavior Survey Goal Attainment Scaling	no change in aggressiveness or assertiveness sig greater goal attainment for exp. group
▲	Plouffe 1980	145	Connecticut Wilderness School 20 days	pre-delinquent & delinquent youth	locus of control self image self confidence deviant behavior recidivism	yes (post hoc)	(6 mos. (strictly follow-up study)	Nowicki-Strickland I-E Behavior Problem Checklist self rating scale structured interview deviant behavior scale parent Q arrests	exp. group was more internal and more positive in self rating, sig less deviant behavior and arrests amount of parent involvement in follow-up sig related to increase in internality

	Author	N	Program & Length	Target Group (F=Females)	Target Areas	Control	Follow-up	Measures	Results
●	Porter 1975	124	adaptive Outward Bound 19 days	"troubled" youth (F=30)	self-esteem behavior ?	no	6 wks	Coopersmith Self Esteem I Coopersmith Behavior Rating Form	sig increase in self-esteem -further increase at follow-up guardians reported positive change at follow-up
◆	Skipper 1974	64	adaptive Outward Bound 26 days	"emotionally disturbed" boys	self-esteem behavior classroom coping	yes	5 mos.	Coopersmith Self Esteem ? Behavior Problem Checklist Coping Analysis Schedule structured interview structured observation	sig increase in self-esteem from pre to post for exp. group -also trend toward less behavior probs. improvement not maintained at follow-up
●	Stewart 1978	24	Connecticut Wilderness School 19 days	pre-delinquent & delinquent youth	social attitudes personality	no	6 mos.	Jesness Inventory Delinquency Attitude Index	sig improvement in social attitudes no short term behavior change but continuous improvement in trust and satisfaction with self and others
■	Svobodny 1979	60	Correctional Camp 90 days	institution-alized delinquent males	self concept social adjustment academic achievement	yes	no	Piers Harris Self Concept Bristol Social Adjustment Slosson Intelligence Test achievement test	sig greater increase in self-concept fo exp group academic achievement correlated with increased social adjustment for exp. group
▶■	Weeks 1985	36	Sierra II Wilderness Program 6 mos.	delinquent youth	interpersonal effectiveness self esteem - school behavior recidivism	no yes	3 mos. 6 mos.	?	sig greater increase in self esteem & interpersonal effectiveness for exp. group - maintained at follow-up sig less absences for exp. group sig decline in crimes for exp. & control groups
▲	Wilman & Chun 1973	253	Homeward Bound 42 days	institution-alized delinquent males	recidivism	yes	14 mos.	reinstitutionalization	Sig less recidivism for exp. group - also, stayed out of trouble longer

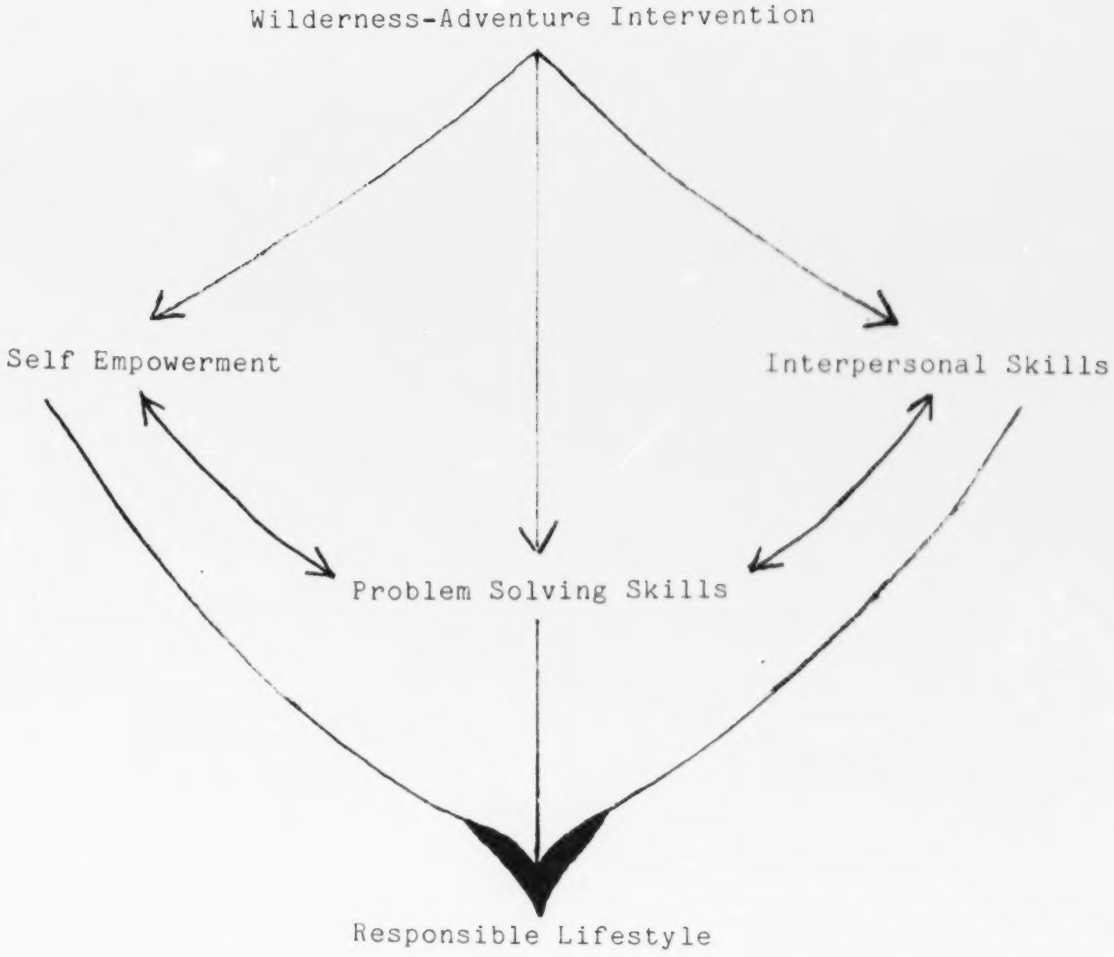
Author	N	Program & Length	Target Group (F=Females)	Target Areas	Control	Follow-up	Measures	Results
Winterdyk 1980	60	adaptive Outward Bound 21 days	delinquent males	self esteem social attitudes school/work - performance recidivism	yes	6 mos.	Piers Harris Self Esteem Jesness Inventory Student Rating Form probation officer report Q parent report Q arrests & reconvictions	no sig differences some improvement for exp group but not maintained parents and staff suggest improved attitude and ability to relate to others for exp. group
Wright 1982	47	adaptive Outward Bound 26 days	delinquent youth (F=3)	self esteem self efficacy locus of control problem solving physical fitness	yes (N=12)	no	Tenn Self Concept Scale General Expectancy for Success Scale Modified I-E Scale cardiovascular test	Sig greater increase in self-esteem, internal locus of control and physica fitness for exp. group. -also sig increase in self efficacy age not offense related to pos exper. no change in problem solving ability
Zwart 1988	88	Wolfcreek Wilderness School 26 days	delinquent males	self concept locus of control interpersonal relations	yes	4-6 wks	Piers Harris Self Concept Nowicki-Strickland I-E FIRO-B Jesness Behavior Checklist	sig increase in socially appropriate behavior for exp. group. sig greater internal locus of control for control group no change in self concept

Table 2

Recidivism Studies

Study	Post Intervention Time Lapse	Recidivism Rates: Experimental Group	Recidivism Rates: Comparison Group	Comparison Group Treatment	Recidivism Criterion Measures
Birkenmayer & Polonoski 1976	12 months	72% (N=82)	51% (N=84)	Institionalization	Recorded contacts with law
Boudette 1989	3 mos.	24% (N=44)	18% (N=25)	Probation	Recorded contacts with law
Cyntrynbaum & Ken 1975	6 mos.	11% (N=49)	30.2% (N=54)	Community-based	Arrests
Florida State Dept. of Health 1978	12 mos.	28% (N=65)	NA	NA	Recommitment to criminal justice system
Hileman 1979	7 mos.	23% (N=48)	40% (N=48)	Community-based	Number of petitions filed and seriousness of offense
Kelly & Baer 1971	12 mos.	20% (N=48)	42% (N=48)	Institutionalized or paroled	Reinstitutionalization
Kelly 1974	5 yrs.	38%	53%	Institutionalized or paroled	Reinstitutionalization Number and seriousness of offenses
Kimball 1979	9 mos.	17% (N=56)	NA	NA	Reconviction
Wilman & Chun 1973	14 mos.	20.8% (N=178)	42.7% (N=75)	Institutionalization	Reinstitutionalization
Winterdyk 1980	6 mos.	20% (N=30)	20% (N=30)	Probation	Police contacts, arrests, reconvictions

Figure 1


Wilderness-Adventure Intervention
Self Empowerment
Interpersonal Skills
Problem Solving Skills
Responsible Lifestyle